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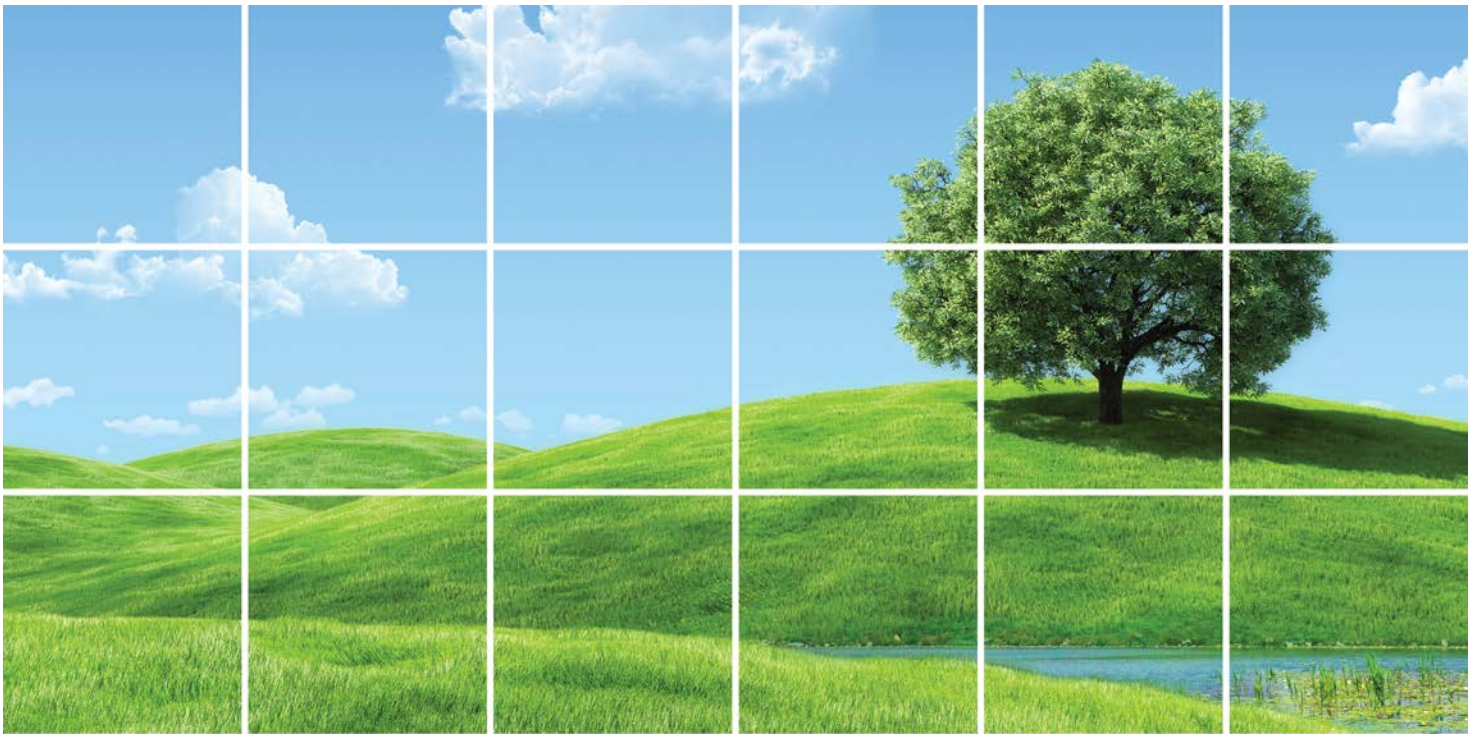

FINAL REPORT

FINAL OPERATION AND MAINTENANCE PLAN

HIMCO SITE
ELKHART, INDIANA

Prepared for: Himco Site Trust

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This Final Operation and Maintenance Plan (O&M Plan) will be updated periodically as a result of changing Site conditions and required changes to the O&M monitoring and/or inspection requirements. The O&M Plan provides contractors with procedures and protocols for long term inspections and maintenance of the Remedial Action (RA) for Himco Site.

Revised sections to this O&M Plan shall be forwarded to the following:

- United States Environmental Protection Agency (USEPA)
- Indiana Department of Environmental Management (IDEM)
- United States Army Corp of Engineers (USACE)
- Performing Settling Defendants (PSDs)

RECORD OF AMENDMENT

Amendment No.	*Date (mm-dd-yr)*	*Amendment Description*
1	03-03-2010	Comments from the Agencies about the 90% Pre-Final Design Report
2	06-06-2012	Minor revisions to finalize O&M Plan

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CD	Consent Decree
CDA	Construction Debris Area
CRA	Conestoga-Rovers & Associates
FSP	Field Sampling Plan
IDEM	Indiana Department of Environmental Management
GMP	Groundwater Monitoring Program
LEL	Lower Explosive Limit
MS/MSD	Matrix spike/matrix spike duplicate
NPL	National Priority List
O&M Plan	Operation and Maintenance Plan
PPE	Personal protective equipment
PVT	Passive Ventilation Trench
PVC	Polyvinyl Chloride
PSDs	Performing Settling Defendants
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAOs	Remedial Action Objectives
RD/RA	Remedial Design/ Remedial Action
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
ROD-A	Amended Record of Decision
Site	Himco Site
SOW	Statement of Work
SVOCs	Semi-Volatile Organic Compounds
TAL	Target analyte list
TCL	Target compound list
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

The Performing Settling Defendants (PSDs), collectively known as the Himco Site Trust, retained Conestoga-Rovers & Associates (CRA) to prepare this Final Operation and Maintenance (O&M) Plan for the Himco Site (Site) in Elkhart, Indiana. The purpose of the O&M Plan presented herein is to provide a summary of the operation, maintenance, and monitoring requirements for various components of the constructed Remedial Action (RA) implemented at the Site.

The O&M Plan shall be implemented during and post construction of the RA. The O&M Plan consists of monitoring of the following RA components: soil cover system, surface water management system, soil gas passive ventilation trench system, soil gas probes, and groundwater monitoring wells at the Site. The O&M Plan has been developed pursuant to Section III, Task 5 of the Statement of Work (SOW).

A Groundwater Monitoring Program (GMP) for the Site was prepared as part of the Interim Groundwater Monitoring Program Report (CRA, 2011) and submitted to the USEPA in May 2011. On behalf of the Trust, CRA responded to USEPA's June 23, 2011 comments and revised the Interim Groundwater Monitoring Program Report on August 12, 2011. USEPA approved the Interim Groundwater Monitoring Program Report and the GMP on August 31, 2011, and issued a revised parameter list for the GMP, which was implemented as of September 2011. The Interim GMP was completed on a quarterly basis from November 2008 to June 2011, except for monitoring wells installed in March/April 2011 as part of the Phase III Groundwater Investigation, which were sampled quarterly until December 2011. The primary goal of the GMP is to monitor and delineate the limits of groundwater contamination. The PSDs will periodically review the O&M Plan and the GMP, and submit proposed revisions to the USEPA for review and approval. The GMP parameter list can be found in the most recent Annual Groundwater Monitoring Report for the Site.

1.1 BACKGROUND

The Site is a closed landfill located at the intersection of County Road 10 and John Weaver Parkway (former Nappanee Street Extension) Elkhart County, Indiana. The Site covers approximately 100 acres in the Northeast 1/4 of Section 36, Township 38 North, Range 4 East in Cleveland Township, of which approximately 65 acres is the landfill. The landfill accepted waste including household refuse, construction rubble,

medical waste, and calcium sulfate between 1960 and 1976. The landfill was closed and covered with a 1-foot layer of sand overlying a layer of calcium sulfate in 1976.

The Site location is presented on Figure 1.1. A Site plan, including property boundaries is presented on Figure 1.2.

According to the Remedial Investigation and Feasibility Study (RI/FS) (SEC Donohue, 1992), the Site consists of two major areas: the calcium sulfate-covered landfill and the 4-acre construction debris area (CDA) subdivided into seven residential properties and one commercial property parcels. The commercial property is not currently occupied or being used for any purpose. The CDA and its northern and western boundaries are defined primarily from 13 test trenches excavated in 1991 during the second phase of field studies for the RI. The southern and eastern boundaries of the CDA, as shown on Figure 1.2, are based on field observations during RA construction.

From 1974 to 1992, a number of environmental investigations were completed at the Site including a RI/FS in 1991 to 1992 by SEC Donohue. Before the implementation of the RI/FS, the USEPA added the Site to the National Priorities List (NPL) on February 21, 1990. Upon completion of the RI/FS, the USEPA subsequently issued a Record of Decision (ROD), executed on September 30, 1993, which identified the selected RA for the Site. Subsequent to the ROD, additional environmental investigations were completed. An Amended ROD (ROD-A) was issued on September 15, 2004. The ROD-A provided for the remedial actions and the remedial action objectives (RAOs) for the landfill cover, CDA soil removal, groundwater, and air components of the Remedial Design/ Remedial Action (RD/RA) for Site. The RD/RA is being conducted pursuant to the Consent Decree (CD), which became effective on November 27, 2007. The lead Agency for the Site is USEPA Region 5. Indiana Department of Environmental Management (IDEM) is the support Agency.

1.2 SCOPE OF THE O&M PLAN

The purpose of the O&M Plan is to serve as a stand-alone reference document that outlines O&M activities for the constructed RA components. The major elements of this O&M Plan are:

- Description of anticipated operation, maintenance and inspection activities

- Description of potential operating problems and/or anticipated repairs, as necessary
- Schedule of each O&M activity
- Description of the inspection and maintenance program for: soil cover system, surface water management system, soil gas passive ventilation trench (PVT) system, the soil gas monitoring probes, groundwater monitoring wells
- Description of field tests for the PVT and soil gas probes
- Description of the groundwater monitoring and analytical laboratory testing
- Description of potential operating problems and contingencies
- Description of health and safety requirements for O&M activities
- Description of equipment planned for O&M activities
- Descriptions of methods and procedures to maintain logs and records
- Descriptions of reporting mechanisms for communications to USEPA and IDEM

Throughout this O&M Plan, the following persons/entities will be referenced:

- PSDs: Refers to the Performing Settling Defendants, collectively known as the Himco Site Trust.
- PSDs Project Manager: Refers to the person that has been designated by the PSDs to coordinate and manage O&M activities at the Site. For this project, the PSDs Project Manager is Mr. Gary Toczylowski of Bayer HealthCare.
- PSDs Alternate Project Manager: Refers to the person that has been designated by the PSDs with the responsibility for coordinating on-Site O&M activities. For this project, the PSDs Alternate Project Manager is Mr. Tom Lenz of Bayer HealthCare.
- O&M Contractor(s): Refers to any Contractor(s) responsible for supervising, managing and/or performing all or specific portions of the O&M work.
- Worker: Refers to the O&M Contractor's on-Site representative responsible for and/or completing the O&M work.

CRA developed the O&M inspection and monitoring schedule in accordance with the SOW. The O&M inspection and monitoring schedules are presented in Table 1.1 and Table 1.2, respectively. The O&M inspection form, O&M trouble shooting guide, and O&M repair form are provided in Appendices A, B, and C, respectively.

The Site's surface water management features are presented on Figure 1.3. The PVT system is presented on Figure 1.4, and the soil gas probes are presented on Figure 1.5. The groundwater monitoring well locations are shown on Figure 1.2. The locations of some features on the figures (such as the soil gas probes) are approximate due to the required submittal of the Final O&M Plan prior to construction completion.

1.3 REVISIONS TO THE O&M PLAN

This O&M Plan presents details on the operation, maintenance, and monitoring requirements of the constructed RA components.

The PSDs may review the O&M Plan periodically to address changing Site conditions and/or USEPA concerns and issues. As appropriate, the PSDs will submit a revised O&M Plan to USEPA for review and approval. The PSDs may also petition USEPA for revisions to the O&M Plan.

2.0 INSPECTION, OPERATION AND MAINTENANCE

2.1 OVERVIEW OF RA SYSTEM

The constructed RA included the installation of the following remedial components on Site:

- Soil cover placed over approximately 50 acres of the consolidated waste footprint, which includes a 12-inch rooting zone layer covered by 6 inches of vegetated topsoil
- Surface water management system including stormwater diversion berms and erosion control measures
- Soil gas PVT system along the southern and southeastern boundaries of the Site
- Soil gas probes installed along the boundaries of the Site
- Groundwater monitoring wells
- Site access road
- Site perimeter fence

2.2 SITE INSPECTIONS

The RA components require routine inspection to ensure that the RA continues to meet the Remedial Action Objections (RAOs) in the Amended Record of Decision (ROD-A). The purpose of the inspections is to determine if the RA components require maintenance. Additionally, the PSDs shall complete soil gas and groundwater monitoring to ensure that the soil gas and groundwater potentially migrating off Site meet the RAOs.

The PSDs shall perform Site inspections on a quarterly basis for the first 2 years following the completion of the RA construction. Following this period, the PSDs will re-evaluate the frequency and type of inspections conducted to determine if the inspection frequency is appropriate.

2.2.1 SOIL COVER

The soil cover over the consolidated waste layer includes two soil layers with a combined thickness of 18 inches. The 12-inch rooting zone layer was placed over the newly contoured waste layer of the landfill. The 6-inch vegetative topsoil layer was placed over the rooting zone layer to support vegetative growth.

At a minimum, the PSDs shall inspect the soil cover for the following items:

- Evidence of erosion, exposure of waste, settlement causing ponding of water, and areas of insufficient grass coverage
- Evidence of burrowing animals, rooting of trees, or other evidence of conditions impacting the integrity of the soil cover
- Evidence of damage caused by environmental conditions and/or monitoring and maintenance vehicular traffic

2.2.2 SURFACE WATER MANAGEMENT SYSTEM

Surface water on the Site is controlled by slopes promoting surface water sheet flow towards diversion berms on the soil cover and existing ponds along the Site perimeter. Conveyance controls consist of roadside drainage ditches, soil cover stormwater diversion berms/swales, and a culvert, as illustrated on Figure 1.3.

At a minimum, the PSDs shall inspect the surface water management systems for the following:

- Surface water management structures such as the culvert, riprap check dams, and swales, for evidence of clogging, blockage, or silt accumulation
- Surface water ditches and channels for evidence of clogging and/or blockage, and for evidence of erosion

2.2.3 SOIL GAS PASSIVE VENTILATION TRENCH (PVT) SYSTEM

The PVT system was installed along the southern and southeastern boundaries of the Site and is presented on Figure 1.4. The alignment of the PVT is based on the limit of

final soil cover, which then determined the offset distances for the perimeter gravel access road. The PVT is located along the exterior edge of the perimeter gravel access road, allowing adequate distance for the installation of the soil gas probes.

A typical detail of the PVT riser and lockable plastic meter box is presented on Figure 2.1.

The PSDs shall visually inspect the PVT riser vents during scheduled Site inspections (see Section 2.2). The PSDs shall inspect the following:

- Wind turbines for damage, corrosion, malfunctioning, or material preventing the turbines from operating
- Sample ports for obstructions (e.g., soil, debris, insects)
- Velocity ports for cracks or missing plugs
- Groundwater level monitoring (i.e., ensuring that groundwater is not higher than the invert of the horizontal perforated polyvinyl chloride [PVC] piping), which would impede soil gas flow

2.2.4 SOIL GAS PROBES

Soil gas probes were installed along the southern and southeastern boundaries of the Site after the soil cover was installed, as presented on Figure 1.5. The soil gas probes are spaced approximately 200 feet per the RD. Existing soil gas probes that were not removed as part of the RA construction activities were incorporated into the soil gas monitoring system, as presented on Figure 1.5.

A typical detail of a soil gas probe is presented on Figure 2.2.

The soil gas monitoring probes will be visually inspected during all monitoring events. The soil gas monitoring probes will be visually inspected for damage, which may compromise the atmospheric isolation of the soil gas probe.

The PSDs shall inspect the soil gas monitoring probes for the following:

- Concrete surface seal that is cracked or heaved

- Protective casings that are damaged
- Valves that are missing or damaged
- Locks or bolts that are missing or rusted

2.2.5 GROUNDWATER MONITORING WELLS

The groundwater monitoring wells are located around and adjacent to the Site. The PSDs shall inspect the groundwater wells that are part of the GMP for the following:

- Concrete surface seal that is cracked or heaved
- Protective casings that are damaged
- Threaded riser pipe plugs that are missing or do not fit to the riser pipe properly
- Locks or bolts that are missing or rusted

2.2.6 SITE ACCESS ROAD

A gravel road was constructed around the Site to facilitate access for O&M activities.

At a minimum, the PSDs shall inspect the Site access road for the following items:

- Evidence of erosion of gravel, settlement causing ponding of water, and areas of insufficient gravel
- Evidence of environmental conditions and/or maintenance vehicular traffic impacting the integrity of the access road

2.2.7 SITE PERIMETER FENCE

The Site perimeter fence was construction around the Site to limit access to the Site. Warning signs are posted on the fence to discourage trespassers.

At a minimum, the PSDs shall inspect the following items:

- Fence, gates, posts and locks for signs of damage from natural environmental conditions (i.e., fallen trees, severe weather conditions) and/or acts of vandalism
- Concrete surface seal for post that is cracked or heaved

2.3 MAINTENANCE

2.3.1 SOIL COVER

Soil cover inspections will determine if the maintenance activities described below are required. Maintenance of the landfill cover and other grassed areas will consist of the following elements, as required:

- Soil cover maintenance will be maintained by mowing every 1 to 2 years, as required, to prevent establishment of brush and tree species
- Woody growth will be removed as needed following routine O&M inspections
- Repair of areas where erosion is observed, such as gullies or areas where surface wash has occurred, by replacing vegetative cover soil to meet the surrounding grades and re-establishing the grass cover
- Fertilizing and re-seeding any areas where the grass cover has declined to less than 80 percent as determined by visual inspection

As agreed with the USEPA during the April 2011 Construction Progress Meeting, cutting the grass every 1 to 2 years will allow the soil cover to establish a more natural appearance over time.

2.3.2 SURFACE WATER MANAGEMENT SYSTEM

Surface water inspections will determine if the maintenance activities described below are required. Maintenance of the surface water management system will include the following elements, as required:

- Removal of any debris/sediment from the inlet and outlet of the culvert that may cause blocking or clogging
- Repair of the rip rap areas at the discharge points at the Site
- Repair of any other areas of the system as indicated by the inspections

2.3.3 PVT SYSTEM

PVT inspections will determine if the maintenance activities described below are required. Maintenance will be performed as indicated by the inspections. Repair or replacement of a damaged PVT riser vent will be initiated or performed within approximately 30 days of its identification. Maintenance of the PVT riser vents will include the following elements, as required:

- Repair of any loose riser vents. Loose riser vents may be repaired by adding and hand-tamping topsoil around the base of the riser vent. Riser vents significantly damaged shall be replaced.
- Repair of any voids or cracks in the soil cover at the base of the riser vents by adding and hand-tamping topsoil around the base of the riser vent.
- Repair of any damaged, corroded, or malfunctioning wind turbines on the riser vents. Removal of debris or other material preventing the wind turbines from operating. Replacement of corroded turbines.
- Clean out the sample ports to remove debris (e.g., soil, inspects) within the port.
- Replacement of any missing sample valves handles.
- Replacement of any damaged velocity ports.
- Repair of any other components of the system as indicated by the inspections.

2.3.4 SOIL GAS PROBES

Inspections will determine if the maintenance activities described below are required. Maintenance will be performed as indicated by the inspections. If a soil gas probe is damaged, the repair of the soil gas probe will be initiated and/or repaired within 30 days of its identification, or as soon as a subcontractor is available to complete the repair. If a soil gas probe is significantly damaged beyond repair, the soil gas probe will be replaced within 30 days, or as soon as a subcontractor is available to complete the repair.

Maintenance of the soil gas monitoring probes will include the following:

- Repair of cracked or heaved concrete surface seal
- Repair of or replacement of any damaged protective casings
- Replacement of any missing valves
- Replacement of any missing locks or bolts
- Repair of damaged components identified during the O&M inspections

2.3.5 GROUNDWATER MONITORING WELLS

Inspections of the monitoring wells will determine if the maintenance activities described below are required. Maintenance will be performed as indicated by the inspections. If a groundwater monitoring well is significantly damaged, the PSDs will be repair the monitoring well within approximately 30 days of its identification or as soon as a subcontractor is available to complete the repair.

Maintenance of the groundwater monitoring wells will include the following:

- Repair of cracked or heaved concrete surface seal
- Repair or replacement of any damaged protective casings
- Replacement of any threaded plugs that are missing and/or do not fit to the riser pipe properly
- Replacement of any missing locks or bolts

2.3.6 SITE ACCESS ROAD

Inspection of the Site access road will determine if the maintenance activities described below are required. Maintenance will be performed as indicated by the inspections. If the Site access road is significantly damaged, the PSDs shall be repair the road within approximately 30 days of its identification, or as soon as a subcontractor is available to complete the repair.

Maintenance of the Site access road will include the following:

- Repair of area where excess ponding of water is observed
- Repair of areas where erosion is observed, such as gullies or areas where surface wash has occurred, by replacing gravel to meet the surrounding grades

2.3.7 SITE PERIMETER FENCE

Inspection of the Site perimeter fence will determine if the maintenance activities described below are required. Maintenance will be performed as indicated by the inspections. If the Site perimeter fence is significantly damaged, the PSDs it will be repair the fence within 30 days of its identification or as soon as a subcontractor is available to complete the repair.

Maintenance of the Site perimeter fence will include the following:

- Repair of cracked or heaved concrete surface seal for posts
- Repair or replacement of any damaged posts or locks
- Replacement of any warning signs vandalized and/or missing
- Replacement of any fencing which may have been damaged

3.0 ROUTINE MONITORING AND LABORATORY TESTING

3.1 PVT SYSTEM

The PVT was constructed to mitigate the potential exposure pathways of soil gas through off-Site subsurface migration. The PVT provides a preferential route in the subsurface and vents soil gas to the atmosphere. In accordance with Part II, Section 4.2.3 of the SOW, the PSDs shall monitor the soil gas vented by the PVT to ensure that methane gas and hydrogen sulfide gas do not migrate off Site at concentrations greater than the Applicable or Relevant and Appropriate Requirements (ARARs). Additionally, in accordance with Part II, Section 4.2.4 of the SOW, the soil gas monitoring program shall be in compliance with the following Indiana Administrative Code (IAC) criteria:

- Ambient Air Quality Standards: 326 IAC 1-3
- Volatile Organic Compound Emission Standards: 326 IAC 2-1,1-3(e)(1)(D), 326 IAC 2-5.1-2(a)(1)(C), 326 IAC 2-5.1-3(a)(1)(D), 326 IAC 2-5.1-3.(a)(1)(E)
- Indiana Fugitive Dust Control: 326 IAC 6-4

The PSDs shall complete soil gas field tests at the PVT risers (i.e., pressure and quality readings) to monitor the effectiveness of the PVT.

Riser pipes affixed with wind turbines were installed approximately every 100 feet along the PVT. Each riser pipe extends from the perforated PVC piping to an approximate height of 5 feet above the ground surface. An in-ground vault was constructed adjacent to each riser pipe to facilitate access to the sample and monitoring ports and the groundwater riser to monitor the groundwater elevations. A typical detail of a riser and lockable plastic meter box is presented on Figure 2.1.

The PSDs shall monitor of the PVT using the following procedures:

- Air velocity will be monitored at each riser prior to the collection of air quality readings. Air velocity will be measured in feet per minute within each riser using a velocimeter. The velocimeter will be inserted into the riser at the velocity port. Three readings will be taken; front, middle, and back of the riser. The riser pipe plug will then be put back in place.
- Gas quality/combustible gas concentrations (specifically methane gas and hydrogen sulfide gas) will be monitored in each riser using a RKI Instrument 1 to 6 Gas

Portable Monitor Eagle Model (RKI Eagle Model), or equivalent. The RKI Eagle Model meter will be connected to the sample port, and then the sample port valve will be opened, and meter readings will be recorded. The valve will then be closed. The RKI Eagle Model meter will monitor for the presence of methane, carbon dioxide, oxygen, and hydrogen sulfide.

- Groundwater levels will be measured at each riser in hundredth of a foot with an electronic water level indicator. The threaded plug will be removed, the electronic water level indicator lowered, and the groundwater level will be recorded. The threaded plug will then be put back in place. Groundwater should not be observed in the system or the groundwater level should be lower than the invert of the horizontal perforated pipe elevation.

In accordance with Part II, Section 4.2.5 of the SOW, the PVT shall be monitored quarterly for the first year after its construction and semi-annually for the following 4 years. The PSDs can review the monitoring frequency after Year 5 to determine if the monitoring frequency is appropriate. The soil gas monitoring program is design to ensure that the PVT system is functioning properly and complies with the RAOs listed in ROD-A.

3.2 SOIL GAS PROBES

In accordance with Part II, Section 4.2.5 of the SOW, 15 soil gas probes were installed as part of the RA. The soil gas probes are located downgradient of the PVT and provide soil gas data to monitor the effectiveness of the PVT was operating properly and to ensure the PVT is mitigating any potential off-Site migration of the soil gas. Soil gas probe locations are presented on Figure 1.5.

In accordance with Part II, Section 4.2.5 of the SOW, the PSDs shall monitor the soil gas on a quarterly basis for the first year and semi-annually for the following 4 years. The PSDs can review the monitoring frequency and determine if the monitoring frequency is appropriate. If pressure is not detected in the soil gas probes, the PSDs may recommend that the monitoring frequency be reduced (subject to approval by USEPA). The PSDs shall monitor the soil gas probes for pressure and measure select gases following procedures:

- Pressure will be monitored at each riser prior to quality readings. Pressure will be monitored in inches of water column with a digital manometer. The digital manometer will be connected to the sample port. The sample port valve will be opened, and the gas readings recorded. Then the sample port will be closed.

Gas quality/combustible gas concentrations (i.e., methane gas and hydrogen sulfide gas) will be monitored in each riser with a RKI Eagle Model meter, or equivalent. The RKI Eagle Model meter will be connected to the sample port, the sample port valve will be opened, and the gas readings will be recorded. The sample port valve will then be closed. The RKI Eagle Model meter will indicate the presence of methane, carbon dioxide, oxygen, and hydrogen sulfide.

3.3 GROUNDWATER MONITORING WELLS

In accordance with Part II, Section 5.1.4 of the SOW, the PSDs will monitor groundwater for a minimum of 10 years. The PDSs completed quarterly groundwater monitoring and sampling as required by the SOW from December 2008 to June 2011. As summarized in Section 1.0 of this O&M Plan, CRA proposed the Groundwater Monitoring Program (GMP) in the Interim Groundwater Monitoring Program Report (CRA, May 2011). USEPA approved the GMP on August 31, 2011 and provided a modified analyte list for the GMP. The GMP currently consists of semi-annual groundwater sampling at select monitoring wells for selected volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals and general chemistry parameters. The GMP parameter list will be found in the Annual Monitoring Report each year.

The GMP groundwater sampling activities will be conducted in accordance with a Site-specific Quality Assurance Project Plan (QAPP) (CRA, 2008) and the QAPP Addendum (CRA, 2010) and a Site-specific Field Sampling Plan (FSP) (CRA, 2008).

4.0 PLANS FOR CONTINGENCIES

4.1 SOIL COVER

The soil cover provides a physical barrier to the consolidated waste layer. Should the PSDs observe that the soil cover is absent and/or inadequate, and the waste layer is exposed, the PSDs shall notify the USEPA and IDEM within 24 hours or the next business day if the observation is completed on a weekend or holiday. The PSDs shall reinstate the soil cover to the surrounding grades or/and place 18 inches of soil cover on the exposed area, which ever is greater, within 30 days of its identification. The PSDs shall submit a summary of the corrective action to the USEPA within 30 days of implementation.

4.2 SURFACE WATER MANAGEMENT SYSTEM

Surface water management features will be inspected for signs of erosion and/or significant debris accumulation. Should the PSDs observe that the surface water features are significantly obstructed and/or the obstructions are causing significant damage to the surrounding areas, the PSDs shall notify the USEPA and IDEM within 24 hours or the next business day if the observation is completed on a weekend or holiday. The PSDs shall submit a corrective action work plan to the USEPA within 30 days of the initial observation. The PSDs shall take every reasonable precaution to limit further deterioration of the surface water system and to mitigate surface water run-off until corrective actions can be implemented. The PSDs shall submit a summary of the corrective action within 30 days of implementation.

4.3 SOIL GAS PASSIVE VENTILATION TRENCH SYSTEM

Groundwater observed in the PVT may impede soil gas migration into the PVT. The PSDs shall monitor groundwater elevations during routine Site inspections. Groundwater observed above the top of the perforated PVC pipe may impede soil gas migration into the PVT. Should elevated groundwater levels be observed in the PVT, the PSDs shall measure the groundwater levels weekly for 4 weeks to determine if elevated groundwater levels persist. If the groundwater levels remain elevated for 4 weeks, the PSDs may set up an extraction pump to extract groundwater from the PVT, if deemed appropriate based upon review of water levels and soil gas probe monitoring

data. Extracted groundwater will be containerized for off-Site disposal. The PSDs shall continue to measure groundwater levels in the PVT on a weekly basis for 4 more weeks to determine if elevated groundwater levels persist. Should elevated groundwater levels continue, the PSDs may develop a long-term corrective action plan, if appropriate.

The PSDs shall also monitor methane gas and hydrogen sulfide gas levels in the PVT to determine if there is the potential for soil gas accumulation. The action levels for methane gas and hydrogen sulfide gas migration potential is based on the lower explosive limits (LELs) for each gas. The LELs for methane gas and hydrogen sulfide gas are 5 percent by volume and 4.4 percent by volume, respectively.

If methane gas and/or hydrogen sulfide gas levels are detected at concentrations greater than their respective LELs, the PSDs shall notify the USEPA and IDEM within 24 hours or the next business day if the detection occurs on a weekend or holiday. Soil gas concentrations will be monitored daily at the PVT for the following week to monitor soil gas readings. Should the PSDs detect methane gas and/or hydrogen sulfide gas greater than the action level, the PSDs shall develop a remedial action plan within 30 days. Soil gas monitoring shall continue on a weekly basis until completion of the remedial action plan or until soil gas levels are less than action levels for 3 consecutive weeks. The PSDs shall submit a summary of the corrective action implemented within 30 days of its implementation.

4.4 SOIL GAS PROBES

The PSDs shall monitor methane gas and hydrogen sulfide gas levels at soil gas probes to determine if there is the potential of soil gas migration. The action levels for methane gas and hydrogen sulfide gas migration potential is based on the gas LEL (i.e., 5 percent and 4.4 percent, respectively).

If soil gas levels are detected at concentrations greater than action levels, the PSDs shall notify the USEPA and IDEM within 24 hours or the next business day if the detection occurs on a weekend or holiday. The PSDs shall monitor soil gas concentrations daily at the soil gas probe where the exceedence was observed for the following 2 weeks. If a gas is consistently detected at a concentration greater than its action level, the PSDs shall develop a remedial action plan within 30 days of the verification period. Soil gas monitoring shall continue on a weekly basis until the remedial action plan is

implemented or until soil gas levels are less than the action levels for three consecutive weeks. The PSDs shall submit a summary of the corrective action implemented within 30 days of implementation.

4.5 GROUNDWATER MONITORING WELLS

As part of the GMP, groundwater will be monitored at the Site at select wells for groundwater flow direction and groundwater chemistry. Should the groundwater flow direction and/or groundwater chemistry change significantly, the PSDs shall notify the USEPA within 45 days of validating the analytical results, and determine suitable next steps, as appropriate.

4.6 SITE ACCESS ROAD

The Site access road will be inspected during every Site inspection. Should the access road require immediate repair to facilitate Site inspections and/or maintenance, the PSDs shall make every reasonable effort to have the access road re-instated to allow for the scheduled inspection and/or maintenance. The PSDs shall notify the USEPA within 30 days if the access road cannot be repaired within the first 30 days after the need for repair was observed, and if Site inspections and/or maintenance are delayed due to limited access.

4.7 SITE PERIMETER FENCE

The Site perimeter fence will be inspected during routine Site inspections for signs of damage and/or acts of vandalism. Should the PSDs observe that the Site perimeter fence is significantly damaged, the PSDs shall complete a fence repair within 30 days. If the PSDs observe significant and/or routine damage to the site fence, and suspect that there are regular Site trespassers, the PSDs may notify the local law enforcement authority to report the incident(s).

5.0 HEALTH AND SAFETY PLAN

5.1 OVERVIEW

CRA developed a Health and Safety Plan (HASP) for the investigative activities at the Site. The HASP was submitted to the USEPA in October 2008 as Appendix C to the Remedial Design Work Plan. Prior to the RA construction, CRA developed another HASP to include RA construction activities and submitted it to USEPA in June 2010 as Appendix R to the Pre-design Investigation/100% Final Design Report. These HASPs include information on Site hazards, personal protective equipment (PPE), air monitoring requirements, decontamination procedures, and emergency response. The O&M Contractors shall review the HASPs prior to completing O&M inspections, maintenance and monitoring activities at the Site. The PSDs shall ensure that the O&M Contractor prepares a supplemental HASP, as required, based on changing Site conditions and any new and/or unresolved safety issues identified. The O&M Contractor is responsible for their workers while at the Site. In general, health and safety precautions should be exercised during the following activities:

- General Site inspections and maintenance activities
- Soil gas monitoring (soil gas PVT and soil gas probes)
- Groundwater monitoring and sampling

In general, workers who may be exposed to the Site waste materials must have completed Hazardous Wastes Operations and Emergency Response (HAZWOPER) training in accordance with OSHA 1910.120. The following sections outline general safety procedures to follow during O&M activities.

5.2 HEALTH AND SAFETY PRECAUTIONS DURING GENERAL MAINTENANCE ACTIVITIES

Site inspections and maintenance shall generally consist of non-intrusive activities (i.e., no contact with waste material at the Site). The O&M Contractor shall ensure that their workers be: aware of O&M requirements, trained to operate equipment, and exercise reasonable safety precautions when conducting work on the Site.

Non-intrusive maintenance activities during the O&M period will include, but are not limited to, the following items:

- Soil cover inspection and maintenance
- Surface water management system inspection and maintenance
- PVT and soil gas probe inspection and maintenance

Equipment used for the O&M activities may include grass mowers, tractors, hydro seeders, loaders, trucks, bulldozers and for similar earthmoving equipment. The general health and safety precautions that should be considered during this phase of activities are:

- Operate equipment in strict accordance with manufacturer's specifications and direction
- Operate equipment safely when adjacent to trees, slopes, ponds, ditches, Site fence, PVT risers, soil gas probes, groundwater monitoring wells and any other structures
- Be mindful of equipment pathways and radius of operation
- Wash hands before eating or drinking
- Wear appropriate PPE for task

5.3 HEALTH AND SAFETY PRECAUTIONS FOR SOIL GAS MONITORING

The following lists some of the precautions to be taken during soil gas monitoring activities for both the PVT and soil gas probes:

- Follow the soil gas monitoring procedures outlined in the FSP.
- Use the manufacturer's procedures for soil gas monitoring equipment.
- All monitoring personnel shall carry a 4-gas meter while conducting soil gas probe and PVT inspections and sampling.
- If methane gas and/or hydrogen sulfide gas are detected to be above their action level, then allow the gas to dissipate. If methane gas and/or hydrogen sulfide levels do not subside, evacuate the immediate area and promptly notify the PSDs Project Manager and the PSDs Alternate Project Manager.

- Wash and rinse hands before eating or drinking.
- Wear appropriate PPE, such as, hard hats, boots, safety glasses, and ear protection.

If a situation arises which is suspected to be hazardous, immediately evacuate the immediate area of potential threat and promptly notify the PSDs Project Manager.

5.4 HEALTH AND SAFETY PRECAUTIONS FOR GROUNDWATER MONITORING PROGRAM

The following lists some of the precautions to be taken during groundwater monitoring activities:

- Follow the FSP and QAPP procedures
- Use the manufacturer's procedures for sampling equipment
- Wash and rinse hands before eating or drinking
- Wear appropriate PPE for tasks
- All monitoring personnel carry a photoionization detector (PID) or 4-gas meter

If a situation arises which is suspected to be hazardous, leave the immediate area of potential threat immediately and notify the PSDs Project Manager.

6.0 EQUIPMENT

6.1 EQUIPMENT IDENTIFICATION

Equipment used for O&M activities shall be inspected prior to use at the Site. The Site-specific FSP includes procedures for equipment calibration and proper cleaning procedures. Table 6.1 presents the O&M Plan equipment list for each landfill management system. Field calibration, including date, time, standard used, measurement results, and corrective actions shall be recorded in the field logbook and/or activity-specific forms.

6.2 INSTALLATION OF MONITORING COMPONENTS

The RA consists of permanent infrastructure (i.e., PVT, soil gas probes and groundwater monitoring wells) and elements that require routine inspection and maintenance. The RA does not consist of any mechanical systems at the Site, (i.e., pumping systems), which require on-going O&M.

6.3 MAINTENANCE OF SITE EQUIPMENT

All O&M equipment shall be maintained and used in accordance with the manufacturer's specifications. O&M Contractor shall inspect all equipment prior to use to ensure it is safe for use.

6.4 REPLACEMENT SCHEDULE FOR EQUIPMENT AND INSTALLED COMPONENTS

The O&M Contractor shall maintain equipment and replaced equipment and/or parts as required.

7.0 RECORDS AND REPORTING MECHANISMS

7.1 O&M DOCUMENTATION

The O&M Contractor and/or workers shall maintain an inspection log to document all inspection observations, O&M activities completed, and/or required. Inspection activities will be recorded on a standard O&M form, which is provided as Appendix A. Inspection logs shall include inspection date, name of worker conducting the inspection, equipment used, and reason for O&M activity. All soil gas and groundwater monitoring activities shall be documented in field books and/or activity-specific forms. The PSDs shall retain all completed forms and sections of field books (originals) in accordance with Section XXV Retention of Records as described in the CD.

Any data collected at the Site during the O&M period will be reported to the USEPA and IDEM in an O&M progress report 45 days after the O&M inspection.

7.2 MONITORING RESULTS

All monitoring results shall be sent to the PSDs Alternate Project Manager for filing. The PSDs shall retain all monitoring results (originals) in accordance with Section XXV Retention of Records as described in the CD.

7.3 RECORDS OF O&M COSTS

Records of O&M costs will be maintained at the PSDs Alternate Project Manager's place of business. Records will include adequate O&M cost backup in the form of detailed invoices, receipts, etc. The PSDs shall retain all records of O&M costs (originals) in accordance with Section XXV Retention of Records as described in the CD.

7.4 REPORTING EMERGENCIES

The O&M Contractor shall report any evidence of vandalism to the PSDs Alternate Project Manager. The O&M Contractor shall report any emergency situations to the PSDs Alternate Project Manager. If an action level for the soil gas monitoring is exceeded or the integrity of an RA system is diminished, the O&M Contractor shall

notify the PSDs Alternate Project Manager, and the PSDs shall follow the reporting protocol outlined in Section 4.0 of this O&M Plan. The PSDs shall notify USEPA and IDEM of emergencies or action level exceedences within 24 hours or the next business day if the incident occurs on a weekend or holiday. The PSDs shall submit a written report to the USEPA and IDEM within 30 days of the incident and the corrective measures taken and/or scheduled, in response thereto. In the case where the written report schedules a corrective action, the PSDs shall submit a final report to the USEPA and IDEM that documents all corrective actions taken in response to the incident within 60 days of all correction actions being implemented.

In reporting emergencies or serious incidents, the worker reporting should be prepared to report the caller's name, caller's job title, company name, address of incident, worker's telephone number, and a description of the emergency.

Emergency Contacts

Fire:		574-293-8931
Police:		574-295-7070
Ambulance:		911 or 574-293-8931
Hospital:	Elkhart General Hospital (Emergency Dept.) 600 East Boulevard	574-523-3315

Directions to the Hospital

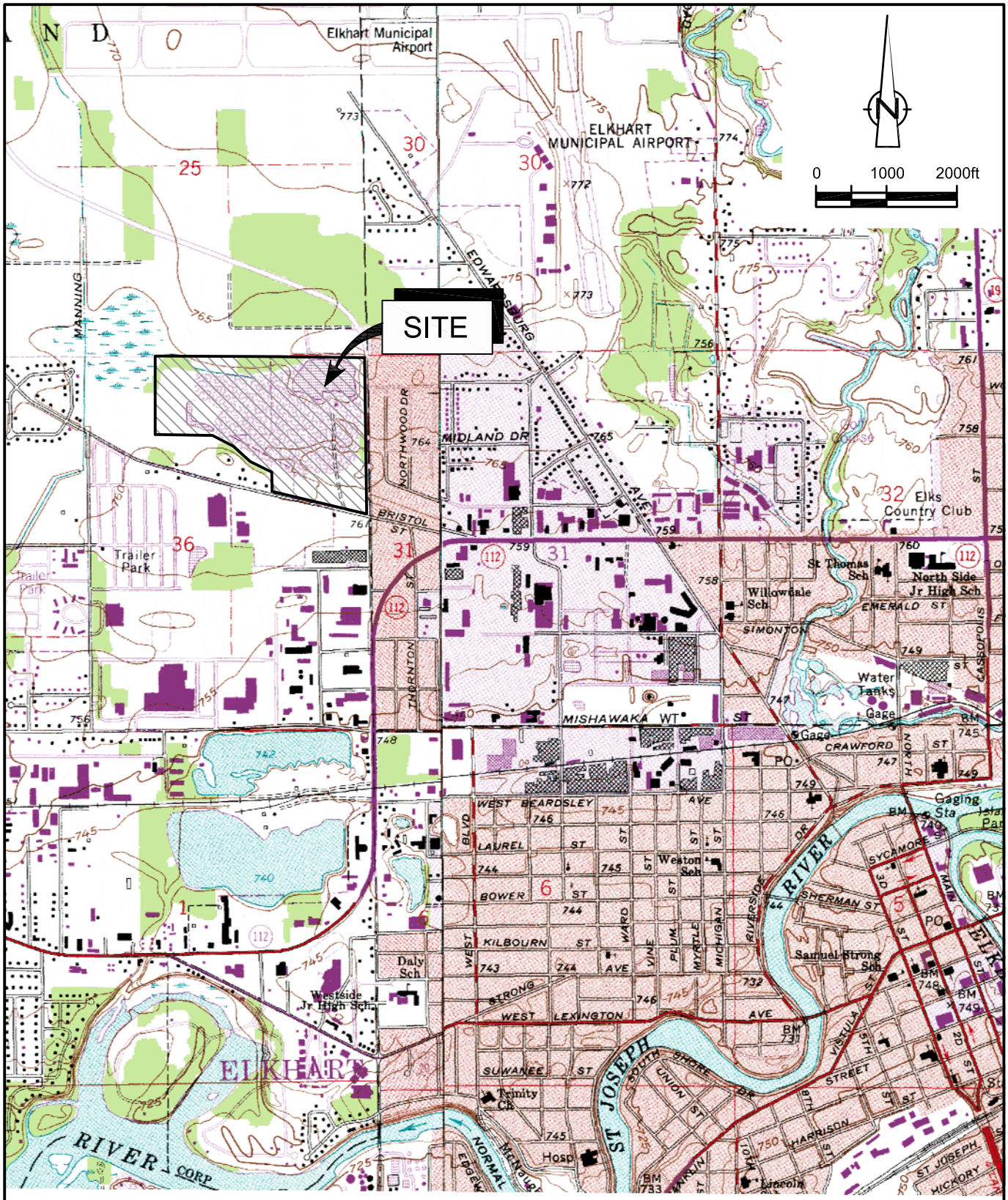
Go East on CR 10 toward SR 19. Make a right onto SR 19. Take SR 19 South to West Lexington Avenue. Turn left onto West Lexington Avenue then right onto East Boulevard. The hospital is 0.5 miles on the right-hand side.

Additional Emergency Numbers

PSDs Project Manager (Mr. Gary Toczylowski)	914-333-6292
PSDs Alternate Project Manager (Mr. Tom Lenz)	574-257-3688
USEPA Emergency Response	800-424-8802
IDEM Emergency Spill Response 24 Hour Emergency	888-233-7745

7.5 PERSONNEL AND MAINTENANCE RECORDS

Personnel and maintenance records for those individual and/or organizations that are involved with the O&M activities at the Site will be maintained. These records will be organized chronologically for easy retrieval. The PSDs shall retain all records (originals) in accordance with Section XXV Retention of Records as described in the CD.



SOURCE: USGS QUADRANGLE MAPS;
ELKHART & OSCEOLA, INDIANA

LEGEND

765 CONTOUR AND INTERVAL 5'

figure 1.1

SITE LOCATION
HIMCO SITE

Elkhart, Indiana

039611-00(016)GN-DE001 NOV 17/2009

DATUM:
STATE PLANE COORDINATES INDIANA EAST ZONE
NORTH AMERICAN VERTICAL DATUM 1988
NORTH AMERICAN DATUM 1983
GEOID 03
UNITED STATES SURVEY FEET

N

0 100 300ft

NOTE:
RESIDENTIAL BUILDINGS ALONG WESTWOOD DRIVE ARE APPROXIMATE AND WERE TAKEN FROM AN AIR PHOTO PLAN (HIMCO PRP WATER EXTENSION) DATED MAY, 12 2005

LEGEND

- SITE BOUNDARY
- PROPERTY BOUNDARY
- FENCE LINE
- POND
- HISTORIC POND
- PAVED ROAD
- UNPAVED ROAD
- LANDFILL LIMITS-2009 (APPROXIMATE)
- WT101A — MONITORING WELL LOCATION
- WTN1 — ABANDONED MONITORING WELL LOCATION
- VAS101 — VERTICAL AQUIFER SAMPLE LOCATION
- APPROXIMATE CONSTRUCTION DEBRIS AREA BASED ON 1992 LANDFILL LIMITS AND ACTUAL CONDITIONS ON SITE
- * — MONITORING WELL WAS INSTALLED AS A CONDITION OF RECEIVING ACCESS TO THE D&J REALTY PROPERTY. MONITORING WELL IS NOT PART OF THE GROUNDWATER MONITORING PROGRAM

WT102B WT102C WT102A
1200 ft NORTH
WT123A* (NOT SURVEYED)
WTB1 WTB2 WTB4 WTB3
WT112A WT112B
WT124A* (NOT SURVEYED)
WT113A WT113B
WTD4 WTD3 WTD2 WTD1
WTCP1
QUARRY POND
LITTLE POND
L - POND
WT103A
WTC1, WTC2, WTC3 & WTC4
JOHN WEAVER PARKWAY (FORMER NAPPANEE STREET EXTENSION)
PLAINFIELD DRIVE
WESTWOOD DRIVE
MIDLAND DRIVE
NORTHWOOD DRIVE
WTO2 VASO-150
WTO1 WTO3 WTO4
WT117C VAS117-150 WT117B
WT117D WT117A
POOL
WT118B WT111A
WT116B VAS116-150 WT116A
GOAT BARN
WTM2 WTM1
WT114C WT114A WT114B
VAS114-150
VAS120-150 WT120B WT120C
WT120A
WT115A VAS115-175 WT115C WT115B
WT119B WT119A
WT101A WT101D VAS101-150 VAS101-225 WT101E WT101B WT101C
COUNTY ROAD 10
WTE2 WTE1 WTE3
WT104A
WTN1
WT122C WT122B WT122A
WTP1
WT105A VAS105-150
WT106A WT106B VAS106-225 VAS106-150 WT106C
WT121B WT121A VAS121-225
WTF(5)

figure 1.2

SITE PLAN
HIMCO SITE
Elkhart, Indiana

39611-00(016)GN-WA001 MAY 31/2012

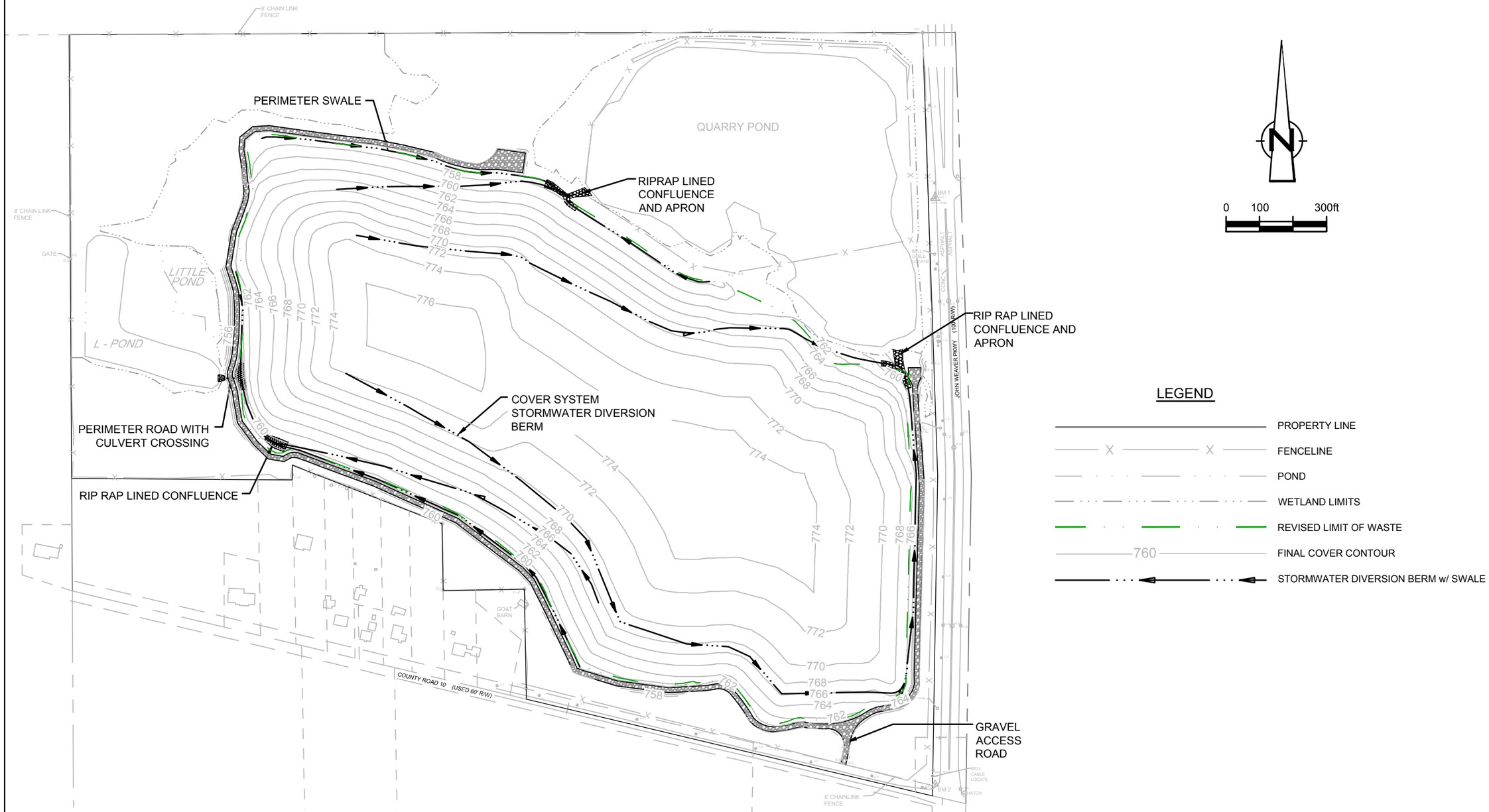
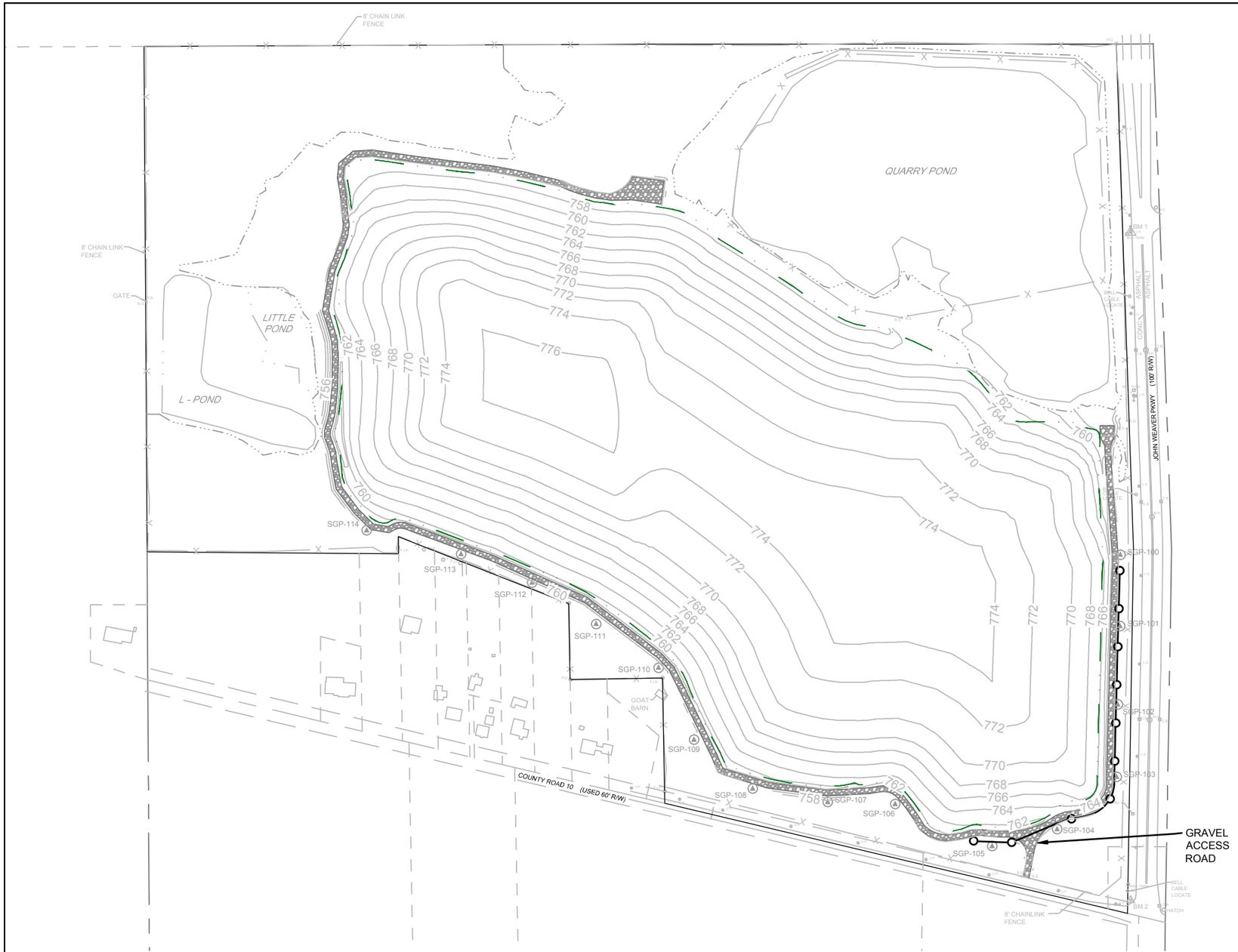


figure 1.3

SURFACE WATER MANAGEMENT SYSTEM
HIMCO SITE
Elkhart, Indiana



LEGEND

- PROPERTY LINE
- 760 — FINAL COVER CONTOUR
- REVISED LIMIT OF WASTE
- SGP-100 — PROPOSED SOIL GAS MONITORING PROBE
- PASSIVE VENTILATION TRENCH

figure 1.4

PASSIVE VENTILATION TRENCH SYSTEM
HIMCO SITE
Elkhart, Indiana

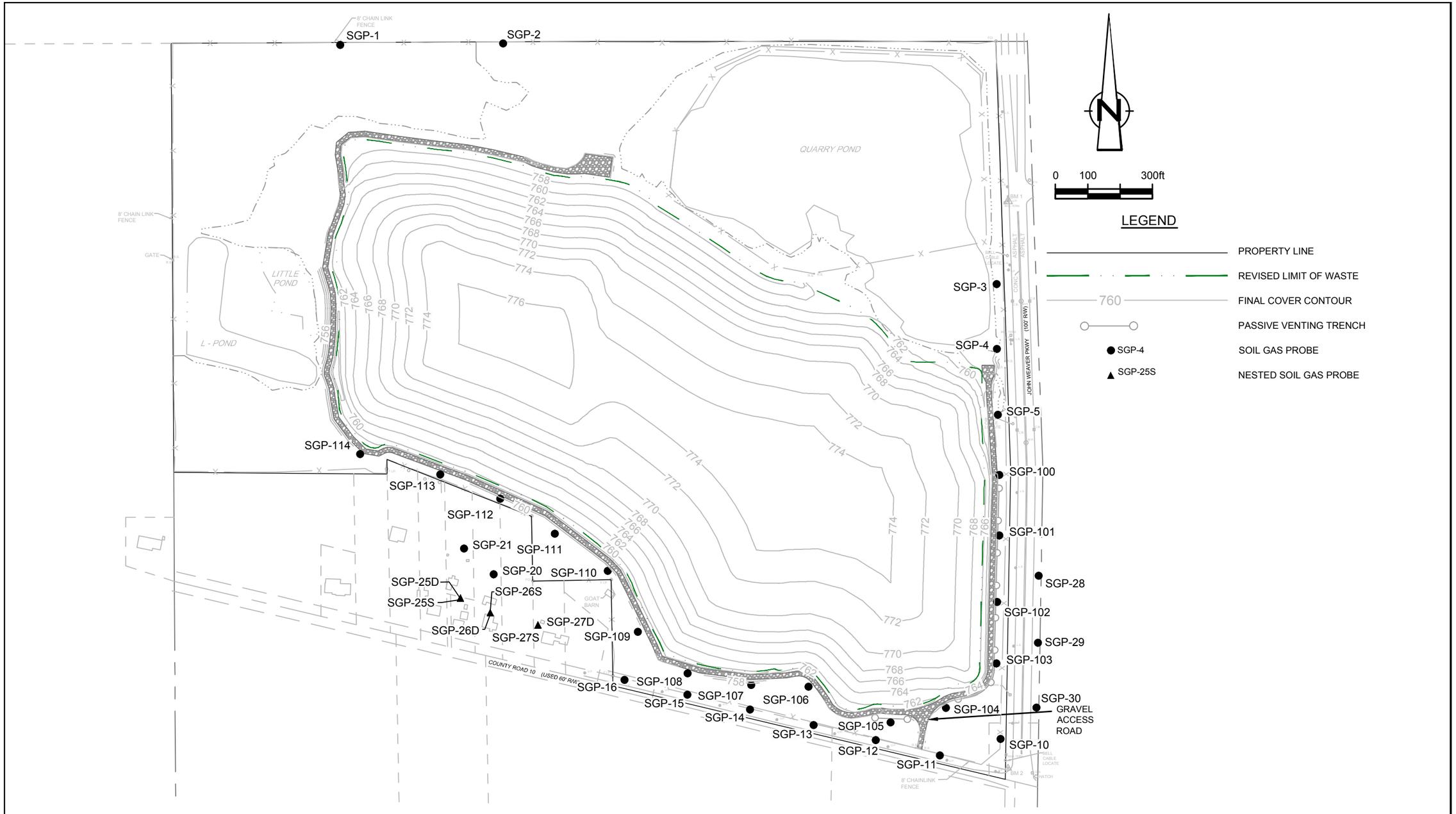
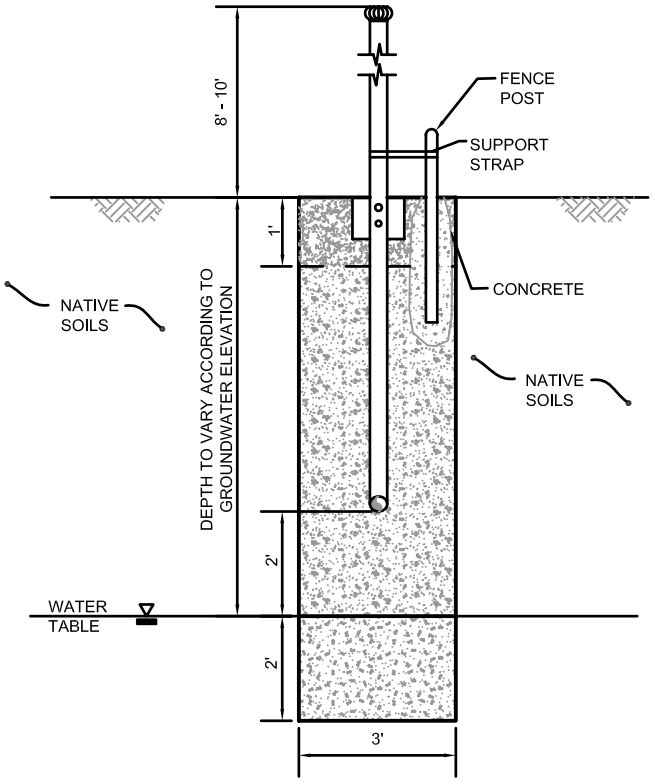
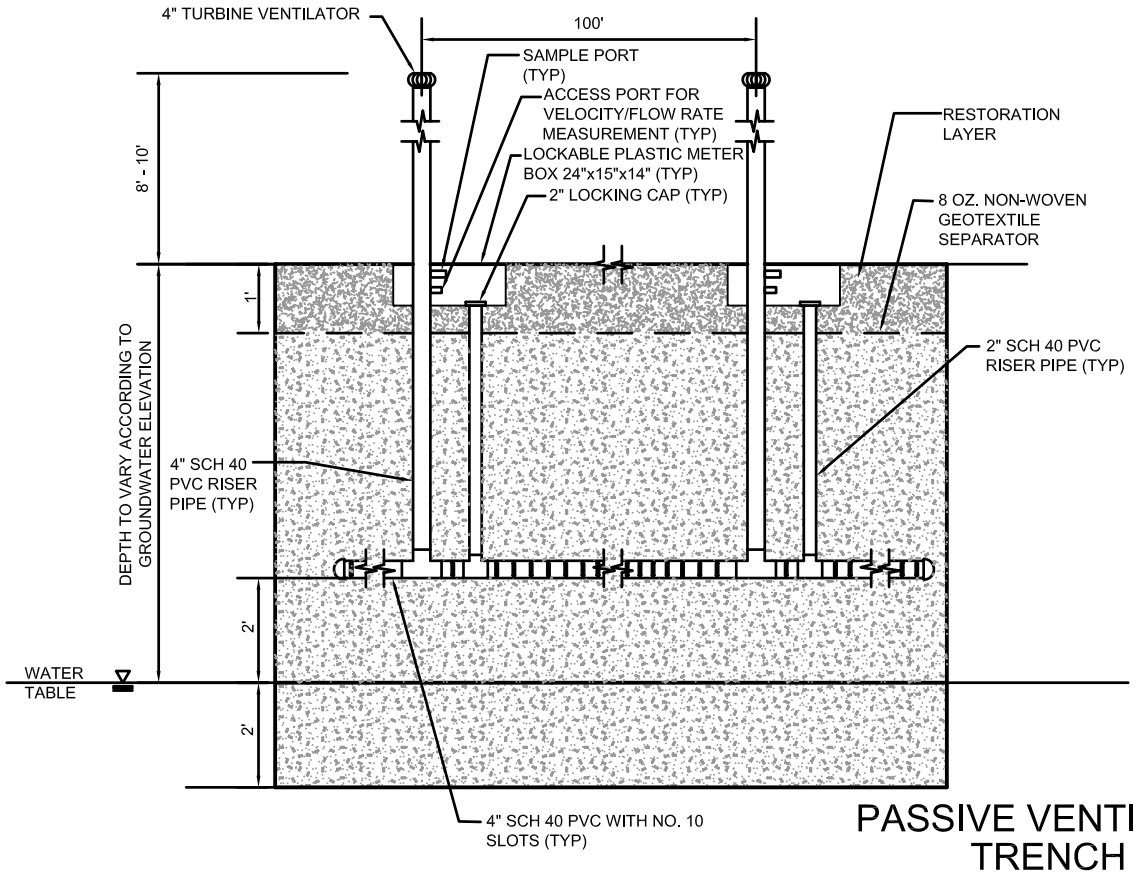


figure 1.5

SOIL GAS PROBE LOCATIONS
HIMCO SITE
Elkhart, Indiana



SECTION



PROFILE

figure 2.1

PASSIVE VENTILLATION TRENCH DETAILS
HIMCO SITE
Elkhart, Indiana

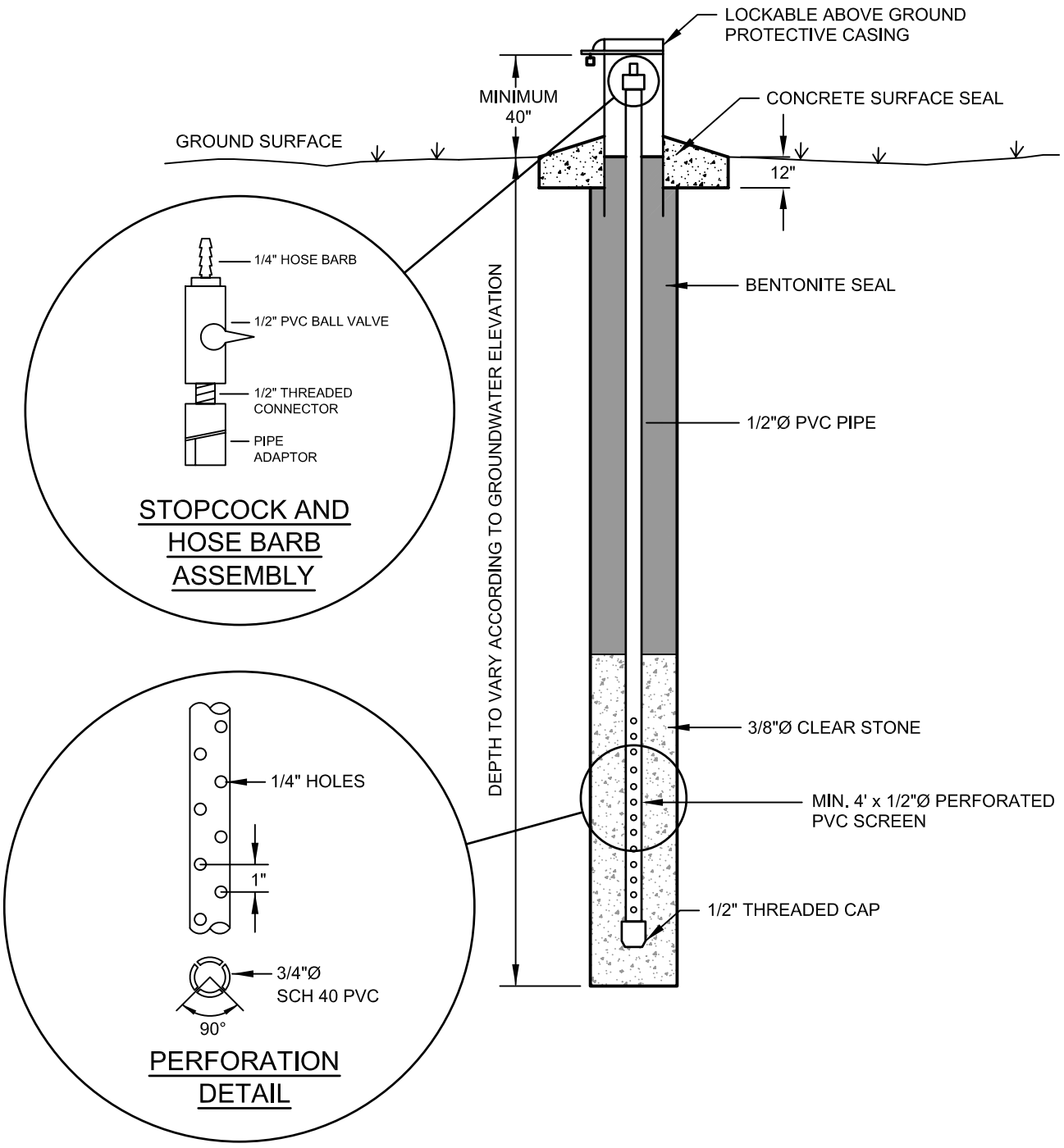


figure 2.2

TYPICAL SOIL GAS PROBE
HIMCO SITE
Elkhart, Indiana

TABLE 1.1

O&M INSPECTION SCHEDULE
FINAL O&M PLAN
HIMCO SITE
ELKHART, INDIANA

REMEDIAL ACTION COMPONENTS	ITEM	YEARS[1]	FREQUENCY
Soil Cover System	Deterioration, damage, depressions, erosion, holes or cracks, rodent infestation, invasive plant species	1-2 3-30	Quarterly As required[2]
Surface Water Management System	Excessive erosion, damage to principal spillways, excessive vegetation or blockage, excessive accumulation of soil/sediment	1-2 3-30	Quarterly As required[2]
Soil Gas Passive Ventilation Trench (PVT) System	Soil gas vents and wind turbines	1 2-5 6-30	Quarterly Semi-annually As required[2]
Soil Gas Probes	Soil gas monitoring probes	1 2-5 6-30	Quarterly Semi-annually As required[2]
Groundwater Monitoring Program	Groundwater monitoring wells		Per USEPA approved GMP[3].
Site Access Road	Excess of erosion of gravel, settlement causing ponding of water, and areas of insufficient gravel	1-2 3-30	Quarterly As required[2]
Site Perimeter Fencing	Fence, gates, posts and locks for signs of damage	1-2 3-30	Quarterly As required[2]

Notes:

1 The O&M Schedule is dependent on the completion of the Remedial Action (RA) construction. Year 1 is the first year the RA is completed.
2 The PSDs will periodically re-evaluate the O&M schedule and proposed changes as required/necessary to the USEPA for approval.
3 The GMP is submitted to the USEPA under separate cover.

TABLE 1.2

O&M MONITORING SCHEDULE
FINAL O&M PLAN
HIMCO SITE
ELKHART, INDIANA

REMEDIAL ACTION COMPONENTS	ITEM	YEARS [1]	FREQUENCY
Soil Gas Passive Ventilation Trench (PVT) system	Combustible gas readings	1 2-5 6-30	Quarterly Semi-Annually As required[2]
Soil Gas Probes	Combustible gas readings	1 2-5 6-30	Quarterly Semi-Annually As required[2]
Groundwater Monitoring Program (GMP) [3]	Groundwater elevations, Laboratory analysis		Per USEPA approved GMP[3].

Note:

1 The PSDs will periodically re-evaluate the frequency of soil gas monitoring at the PVT and soil gas probes to determine if the monitoring frequency is appropriate.

2 The PSDs will periodically review the monitoring schedule based on site conditions and data collected.

3 The GMP is submitted to the USEPA under separate cover.

TABLE 6.1

EQUIPMENT IDENTIFICATION
FINAL O&M PLAN
HIMCO SITE
ELKHART, INDIANA

Remedial Action Component	*Equipment*
1. Soil Cover	
- Grass/ vegetation	Grass mowers
2. Surface Water Management System	
- Grass	Grass mowers
3. Soil Gas Passive Ventilation Trench (PVT) System	
- Groundwater elevations	Solinst water level meter, or equivalent
- Gas quality/combustible gas	RKI Eagle Model meter, or equivalent
- Air Velocity	Wind Velocity Meter
4. Soil Gas Probes	
- Gas quality/combustible gas	RKI Eagle Model meter, or equivalent
- Soil gas pressure	Dwyer digital manometer (or equivalent)
5. Groundwater Monitoring Program	
- Groundwater elevations	Solinst water level meter, or equivalent
- Conductivity, pH, temperature, and oxidation reduction potential	YSI Model 3560 instrument, or equivalent
- Turbidity	HF Scientific DRT-15C Turbidimeter, or equivalent
- Dissolved oxygen	YSI Model 52 instrument, or equivalent
- Pump (if required)	Grundfos or equivalent 2-inch diameter submersible electric pump

APPENDIX A

OPERATION AND MAINTENANCE INSPECTION FORM

APPENDIX A

OPERATION AND MAINTENANCE INSPECTION FORM
O&M PLAN
HIMCO SITE
ELKHART, INDIANA

Date: _____ *Weather:* _____
Inspector: _____ _____

Inspection Item	*Inspect For*	*Comments and Remarks:* *(Note if repair/maintenance is recommended, describe its location/extent and identify on Maintenance Repair Form. If no deficiency, not as such).*
1. Landfill Cover		
Vegetated Soil Cover	- erosion	
	- exposure of the waste	
	- areas of insufficient grass coverage	
	- length of grass	
	- dead/dying grass	
	- washouts	
	- settlement causing ponding of water	
	- burrowing by animals	
	- rooting of trees	
Gravel Access Roads	- erosion	
	- obstructions	
	- potholes	
	- debris	
	- damage caused by vehicular traffic	
Perimeter Fence	- integrity of fence	
	- integrity of gates	
	- integrity of locks	
	- placement and condition of signs	

OPERATION AND MAINTENANCE INSPECTION FORM
O&M PLAN
HIMCO SITE
ELKHART, INDIANA

Date: _____ *Weather:* _____
Inspector: _____ _____

Inspection Item	*Inspect For*	*Comments and Remarks:* *(Note if repair/maintenance is recommended, describe its location/extent and identify on Maintenance Repair Form. If no deficiency, not as such).*
2. Surface Water Management System		
Surface Water Ditches	- sediments	
	- erosion	
	- evidence of erosion	
	- obstructions	
Culvert	- silt accumulation	
	- erosion	
	- obstructions	
3. Soil Gas Passive Ventilation Trench System		
Riser and vents	- intact/damaged	
4. Soil Gas Probes		
Soil gas probes	- intact/damaged	
	- missing locks	

OPERATION AND MAINTENANCE INSPECTION FORM
O&M PLAN
HIMCO SITE
ELKHART, INDIANA

Date: _____ *Weather:* _____
Inspector: _____ _____

Inspection Item	*Inspect For*	*Comments and Remarks:* *(Note if repair/maintenance is recommended, describe its location/extent and identify on Maintenance Repair Form. If no deficiency, not as such).*

5. Groundwater Monitoring Program

Monitoring Wells
- intact/damaged
- missing locks

_____
_____

6. Other Pertinent Observations

_____
_____
_____
_____

APPENDIX B

OPERATION AND MAINTENANCE TROUBLE SHOOTING

OPERATION AND MAINTENANCE TROUBLE SHOOTING
O&M PLAN
HIMCO SITE
ELKHART, INDIANA

Areas of Concern	*Potential Problem*	*Action*
1. Landfill Cover		
Vegetated Soil Cover	Wash out and erosion of grass, topsoil, or rooting zone soils. Typically on steep slopes.	Action should be taken to prevent further erosion and to protect exposed refuse. Recover washed out soil as appropriate. This material may be used to restore the eroded area. Backfill, as necessary, with additional soil to original cover design thickness. Fertilize and reseed with grasses existing conditions.
	Bare Areas.	Loosen and till topsoil. Reseed and mulch as necessary.
	Settlement of original cover. Standing water. Bare areas once dried up.	Assess size of settlement and potential impact to cover. Till topsoil and grade. Add additional topsoil if necessary. Check final elevation to ensure adequate drainage. Reseed and mulch. If ponding is minor, grading of topsoil should be sufficient. If significant ponding is present, additional soil may be required.
	Dead/dying grass (potential for erosion).	Re-established vegetation.
	Weed/bushes and deterioration of grasses. Potential penetration through cover if left unattended.	Remove all bushes and tall weeds. Reseed as required. Perform annually as a minimum.
	Animal holes/burrows in cover. Safety hazard. Potential for soil cover erosion.	Seal all holes with rooting zone soils. Replace topsoil, seed and mulch.
	Sediment in along surface water diversion berms and interruption of normal surface water flow pattern.	Remove sediment. Replace sod or reseed and mulch if damaged.

OPERATION AND MAINTENANCE TROUBLE SHOOTING
O&M PLAN
HIMCO SITE
ELKHART, INDIANA

Areas of Concern	*Potential Problem*	*Action*
1. Landfill Cover (cont'd)		
Gravel Access Roads	Washed out surface gravel or subbase material.	Recover washed out gravel as appropriate. This material may be used to restore the eroded area. Backfill to specifications. Backfill and compact to original grade.
	Potholes (potential safety hazard).	Backfill and compact to grade as required in specifications.
	Obstructions (safety hazard).	Remove obstructions as soon as possible. Place in secure area pending off-Site removal.
Gates and Locks	Vandalism. Site security.	Replace and secure locks as necessary. Make sure locks are operational.
Perimeter Fence	Forced entry or seasonal damage.	Repair or replace as needed.
Signs	Tampering or theft.	Repair or replace signs.
2. Surface Water Management System		
Surface Water Diversion Berms	Sod drying out. Riprap displaced.	Reseed. Replace stone cover as specified.
	Obstructions or debris.	Remove obstructions or debris which may affect flow.

OPERATION AND MAINTENANCE TROUBLE SHOOTING
O&M PLAN
HIMCO SITE
ELKHART, INDIANA

Areas of Concern	*Potential Problem*	*Action*
3. Soil Gas Passive Ventilation Trench System		
Riser and vents	Loose vents. Damaged, corroded, or malfunctioning wind turbines. Vandalism.	Replace and repair as necessary. Make sure vents are operational.
4. Soil Gas Probes		
Soil gas probes	Damaged or rusted lock. Damaged casing. Vandalism.	Replace and repair as necessary.
5. Groundwater Monitoring Program		
Groundwater monitoring wells	Damaged or rusted lock. Damaged casing. Vandalism.	Replace and repair as necessary.

APPENDIX C

OPERATION AND MAINTENANCE REPAIR FORM

APPENDIX C

OPERATION AND MAINTENANCE REPAIR FORM
O&M PLAN
HIMCO SITE
ELKHART, INDIANA

Landfill Management System (circle one): Gen. Site Final Cover Surface Water PVT Soil Gas Probes Groundwater

Date Problem Identified: _____

Description of Problem: _____

_____

Description of Maintenance or Repair Taken (Type, Location, Extent)

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Date(s) of Maintenance Repair: _____

Inspector(s): _____

Signed: _____